the commercially available SPARTAN® series of FPGAs from Xilinx, Inc., 2100 Logic Drive, San Jose, CA 95124. The VERILOG® description can be used as the input to the FPGA design and synthesis tools available from the FPGA manufacturer to realize the virtual microcontroller 220 (generally after timing adjustments and other debugging). Thus, design and realization of the FPGA implementation of an emulator for the microcontroller (virtual microcontroller) or other device can be readily achieved by use of the VERILOG® description along with circuitry to provide interfacing to the base station and the device under test (DUT).

VERSION OF AMENDMENTS WITH CHANGES SHOWN:

IN THE SPECIFICATION

Please replace the paragraph beginning at page 4, line 9 with the following:

A third technique, one that is used in the [Pentium™] PENTIUM® and [Pentium Pro™] PENTIUM PRO™ series of microprocessors available from Intel Corporation, provides a special "probe mode" of operation of the processor. When the processor is placed in this probe mode, a number of internal signals are routed to a "debug port" for use by the in-circuit emulation system. This debug port is used to permit the in-circuit emulation system to communicate with the processors at all times and, when placed in probe mode, to read otherwise inaccessible probe points within the processor. Of course, providing such a probe mode requires significant design resources to design in all such probe and debug functions and associated instruction code support into the standard processor. This, of course, increases development cost, chip complexity and chip size. Moreover, such facilities become a part of the processor design which must be carried through and updated as required as enhancements to the original design are developed.

Please replace the paragraph beginning at page 5, line 9 with the following:

An In-Circuit Emulation system breakpoint control consistent with an embodiment of the present invention has a microcontroller and a [a] virtual microcontroller operating in lock-step synchronization. A breakpoint lookup table is associated with the virtual microcontroller with a break bit associated with each of a plurality of instruction addresses, the break bit being set to indicate that a break is to occur at a specified instruction address. A breakpoint controller sends a break message to the microcontroller whenever an instruction address is encountered that is associated with a set break bit.

Please replace the paragraph beginning at page 8, line 21 with the following:

A commercial ICE system utilizing the present invention is available from Cypress [Micro Systems,] MicroSystems, Inc., for the CY8C25xxx/26xxx series of microcontrollers. Detailed information regarding this commercial product is available from Cypress [Micro Systems,] MicroSystems, Inc., 22027 17th Avenue SE, Suite 201, Bothell, WA [98021Bothell, WA] 98021, in the form of version 1.11 of ["PSoC Designer:] "PSOC DESIGNER: Integrated Development Environment User Guide", which is hereby incorporated by reference. While the present invention is described in terms of an ICE system for the above exemplary microcontroller device, the invention is equally applicable to other complex circuitry including microprocessors and other circuitry that is suitable for analysis and debugging using in-circuit emulation. Moreover, the invention is not limited to the exact implementation details of the exemplary embodiment used herein for illustrative purposes.

Please replace the paragraph beginning at page 9, line 4 with the following:

Referring now to **FIGURE 2,** an architecture for implementation of an embodiment of an ICE system of the present invention is illustrated as system 200. In system 200, a Host computer 210 (e.g., a personal computer based on a [Pentium™] PENTIUM® class microprocessor) is

interconnected (e.g., using a standard PC interface 214 such as a parallel printer port connection, a universal serial port (USB) connection, etc.) with a base station 218. The host computer 210 generally operates to run an ICE computer program to control the emulation process and further operates in the capacity of a logic analyzer to permit a user to view information provided from the base station 218 for use in analyzing and debugging a system under test or development.

Please replace the paragraph beginning at page 9, line 29 with the following:

The FPGA of the base station 218 of the current embodiment is designed to emulate the core processor functionality (microprocessor functions, Arithmetic Logic Unit functions and RAM and ROM memory functions) of the Cypress MicroSystems CY8C25xxx/26xxx series microcontrollers. The CY8C25xxx/26xxx series of microcontrollers also incorporates I/O functions and an interrupt controller as well as programmable digital and analog circuitry. This circuitry need not be modeled using the FPGA 220. Instead, the I/O read information, interrupt vectors and other information can be passed to the FPGA 220 from the microcontroller 232 over the interface 226 as will be described later.

Please replace the paragraph beginning at page 10, line 27 with the following:

In the designing of a microcontroller or other complex circuit such as the microcontroller 232, it is common to implement the design using the [Verilog™] VERILOG® language (or other suitable language). Thus, it is common that the full functional design description of the microcontroller is fully available in a software format. The base station 218 of the current embodiment is based upon the commercially available [Spartan™] SPARTAN® series of FPGAs from Xilinx, Inc., 2100 Logic Drive, San Jose, CA 95124. The [Verilog™] VERILOG® description can be used as the input to the FPGA design and synthesis tools available from the FPGA manufacturer to realize the virtual microcontroller 220 (generally after timing adjustments and other

debugging). Thus, design and realization of the FPGA implementation of an emulator for the microcontroller (virtual microcontroller) or other device can be readily achieved by use of the [Verilog™] VERILOG® description along with circuitry to provide interfacing to the base station and the device under test (DUT).

IN THE DRAWINGS

Applicant respectfully requests approval of the drawing changes proposed in the enclosed Request for Approval of Drawing Changes.

SUPPORT FOR AMENDMENTS

Support for the amendments herein can be found throughout the specification as originally filed. The present amendment intends to clarify references to trademarks of Cypress MicroSystems, Inc. and others (see, e.g., M.P.E.P. § 608.01(v) and the attached printouts from http://tess.uspto.gov/, notably the "PENTIUM," "VERILOG" and "SPARTAN" trademark registration information therein, and http://www.cypressmicro.com/corporate/CY_Announces_nov_13_2000.html). No new matter is introduced.

REMARKS

Claims 1-20 are presented for consideration in the present application, which is now believed to be in condition for examination. Early notice to that effect is earnestly solicited.

Respectfully submitted,

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(pentium)[COMB]

Refine Search

Current Search: S2: (pentium)[COMB] docs: 21 occ: 48

	Serial Number	Reg. Number	Word Mark	Check Status	Live/Dead
1	76405269		PENTIUM	TARR	LIVE
2	75412486	2547564	PENTIUM	TARR	LIVE
3	75746763	2377327	INTEL INSIDE PENTIUM !!!	TARR	LIVE
4	75505341	2446757	PENTIUM II XEON	TARR	LIVE
5	75412487	2337151	PENTIUM	TARR	LIVE
6	75371547	2250493	PENTIUM	TARR	LIVE
7	75371361	2261579	PENTIUM	TARR	LIVE
8	75371325	2257967	PENTIUM	TARR	LIVE
9	75371290	2250490	PENTIUM	TARR	LIVE
10	75371289	2250489	PENTIUM	TARR	LIVE
11	75371273	2369082	PENTIUM	TARR	LIVE
12	75252722		PENTIUM	TARR	DEAD
13	75160172	2173650	PENTIUM	TARR	LIVE
14	75160171	2201867	PENTIUM	TARR	LIVE
15	75160170		PENTIUM	TARR	DEAD
16	75105832		PENTIUM MMX	TARR	DEAD
17	75105831		PENTIUM MMX	TARR	DEAD
18	74622440	1941172	PENTIUM PROCESSOR	TARR	LIVE
19	74716085	2155197	INTEL INSIDE PENTIUM PROCESSOR	TARR	LIVE
20	74511487		PENTIUM	TARR	DEAD
21	74291248	1834434	PENTIUM	TARR	LIVE

Typed Drawing

Word Mark	**PENTIUM**
Goods and Services	IC 009. US 021 023 026 036 038. G & S: computers; computer hardware; computer firmware for use in operating and maintaining the computer system; semiconductors; microprocessors; integrated circuits; microcomputers; computer chipsets; computer motherboards and daughterboards; computer graphics boards; computer networking hardware; computer network adaptors, switches, routers and hubs; computer peripherals and electronic apparatus for use with computers; keyboards; trackballs; computer mouse devices; computer input devices; computer monitors; video apparatus; video circuit boards; apparatus and equipm nt for recording, processing, receiving, reproducing, transmitting, modifying, compressing, decompressing, broadcasting, merging and/or enhancing sound, video images, graphics, and data; algorithm software programs for the operation and control of computers; computer component testing and calibrating electronic units; set-top boxes, namely, electronic control boxes for the interface and control of computers and global computer networks with television and cable broadcasts and equipment; computer programs for network management; computer utility programs; computer operating system software; computer programs for recording, processing, receiving reproducing, transmitting, modifying, compressing, decompressing, broadcasting, merging, and/or enhancing sound, video, images, graphics, and data; computer programs for web page design; computer programs for accessing and using the global computer networks; telecommunications apparatus and instruments; apparatus and equipment for use in video-conferencing, teleconferencing, document exchange and editing; cameras and digital cameras for use with computers; headsets for use with computers, computer software, video-conferencing equipment and teleconferencing equipment; parts, fittings, and testing apparatus for all the aforesaid goods; and user manuals for use with, and sold as a unit with, all the aforesaid goods. FIRST USE: 19930500. FIRST USE IN COMMERCE: 19930500
Mark Drawing Code	(1) TYPED DRAWING
Serial Number	75412487
Filing Date	December 31, 1997
Filed ITU	FILED AS ITU
Published for Opposition	January 11, 2000

Registrati n Number	2337151
Registration Date	April 4, 2000
Owner	(REGISTRANT) Intel Corporation CORPORATION DELAWARE 2200 Mission College Blvd. Santa Clara CALIFORNIA 95052
Attorney of Record	LISA A GARONO
Prior Registrations	1834434;1941172
Type of Mark	TRADEMARK
Register	PRINCIPAL
Live/Dead Indicator	LIVE

CYPRESS MICROSYSTEMS UNVEILS PROGRAMMABLE SYSTEM-ON-A-CHIP FOR EMBEDDED INTERNET, COMMUNICATIONS AND CONSUMER SYSTEMS

PSoC™ Devices Integrate Programmable Analog and Digital Functions To Simplify Design Of Wireless, Handheld, Data Communications, and Industrial Systems

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WOODINVILLE, Wash., November 13, 2000 - Cypress MicroSystems, a subsidiary of Cypress Semiconductor, today introduced a family of programmable system-on-a-chip (PSoC™) devices, designed to implement a single, configurable device on MCU-based system boards. As general purpose solutions, PSoC devices are targeted for implementation in embedded applications, including audio, wireless, handheld, data communications, Internet control, industrial, and consumer systems.

PSoC devices integrate a fast microcontroller, SONOS™-based (Silicon Oxide Nitride Oxide Silicon) Flash memory and SRAM, and programmable arrays of analog and digital system functions - known as PSoC blocks - in low-cost, small-footprint packages. To save designers time, Cypress Microsystems also offers User Modules - pre-designed peripherals comprised of PSoC blocks. By selecting a PSoC with the needed resource combination of memory, PSoC blocks and pins, designers have a device that reduces costs by eliminating external chips and simplifying system design.

"Today there are thousands of different 8-bit microcontrollers on the market, and designers still have trouble finding one that is a perfect fit for their application. In addition, embedded applications require analog peripherals that usually call for additional external devices," said Mike Polen, Cypress MicroSystems's vice president of marketing. "Engineers know that the perfect solution is a custom-designed system-on-a-chip, but custom microcontrollers, ASICs and PLDs are expensive, require very large volumes or call for specialized design skills."

"In contrast, the Cypress Microsystems PSoC solution offers custom configurations, takes no time or special expertise to create, incurs no NRE, and integrates both analog and digital functions," continued Polen. "These factors make the cost of the PSoC solution competitive with standard microcontrollers."

SONOS - a proprietary Cypress process technology - is key to Cypress Microsystems's system-on-a-chip. SONOS is a cost-effective, electrically-erasable, programmable, non-volatile memory structure that speeds time-to-market at a cost that is comparable with commodity devices. SONOS is also being implemented in Cypress Semiconductor's frequency timing generators, USB controllers and intelligent control network devices.

About PSoC blocks and User Modules

After a review of the peripherals found in microcontrollers and the analog ICs used in typical designs, Cypress Microsystems engineers selected a variety of digital and analog peripherals, then created PSoC blocks, or system-on-a-chip blocks, and integrated them into each PSoC device. Users select the functions they need and configure the PSoC blocks on the PSoC device accordingly.

Digital PSoC blocks are 8-bit peripherals that can be programmed to perform a variety of functions by changing the contents of a few registers. They can be configured as timers, controllers, serial communications ports, CRC generators, or pseudo-random number generators. They can be connected in series to handle more complex functions - for example, a 24-bit timer is three connected 8-bit PSoC blocks acting as timers.

Analog PSoC blocks consist of programmable operational amplifier circuits that can be configured to perform a set of typical analog peripheral functions. Analog PSoC blocks can be programmed by setting a few registers to interconnect and trim the appropriate operational amplifier circuit to create the desired result. Among the typical peripherals that can be created are amplifiers, DACs, ADCs, analog drivers, and high-, low- and band-pass filters.

To eliminate the need for customers to understand PSoC blocks in-depth and further shorten development time, Cypress Microsystems developed User Modules, preconfigured peripherals created from PSoC blocks. User Modules allow customers to select the functions they need and automatically integrate the necessary PSoC

blocks into their PSoC device.

Software Support

Cypress Microsystems will offer PSoC Designer™, a complete development system to support the PSoC device. The system will include a C compiler and assembler, a linking and debugging tool, an in-circuit emulator, and the Device Editor™.

Designers can use the Device Editor and its graphical interface to configure a PSoC device by dragging the desired peripherals or functions - from a library of User Modules - into the part. The selected User Modules are then automatically mapped onto the available PSoC blocks.

On-chip Flash program memory stores each PSoC device's parameters, allowing the user to reprogram the device during production, during system test or in the field. PSoC devices may even be self-reprogrammed remotely.

"PSoC devices are like a screwdriver with replaceable bits," stated Nathan John, Cypress Microsystems's director of marketing. "They can be configured and reconfigured as the design progresses and functional requirements change. They provide a core set of analog and digital functions that eliminate the need for additional devices. And they can be programmed to custom-fit any application."

Availability and Pricing

Cypress Microsystems will initially offer the following PSoC devices:

Part Number	Max. Speed	Package	Samples	Production	Price (Q 1,000)
CY8C25122	24 MHz	8-pin DIP	Q1 2001	Q1 2001	$ 1.76
CY8C26233	24 MHz	20-pin DIP 20-pin SOIC 20-pin SSOP	Q1 2001	Q1 2001	$ 2.21
CY8C26443	24 MHz	28-pin DIP 28-pin SOIC 28-pin SSOP	Q4 2000	Q1 2001	$ 2.79
CY8C26643	24 MHz	48-pin DIP 48-pin SSOP 48-pin TQFP	Q1 2001	Q1 2001	$ 3.53

About Cypress Microsystems

Cypress Microsystems designs, develops, manufactures and markets high-performance, field programmable integrated micro-based solutions for high-volume embedded control functions in computer, communications, consumer and control applications. Established as a subsidiary of Cypress Semiconductor Corporation in the fourth quarter of 1999, Cypress Microsystems's stockholders are its employees and Cypress Semiconductor. The close association with Cypress Semiconductor allows access to their process and design technology, and field sales and applications forces. Cypress Microsystems is based near Seattle in Woodinville, Washington.

The Cypress Microsystems PsoC™ family of programmable system-on-a-chip devices will replace many MCU-based system boards with one single-chip, programmable PSoC. A single PSoC device provides a fast microcontroller, SONOS™ FLASH and SRAM memory, and configurable analog and digital peripheral blocks in a range of convenient pin outs and memory sizes. This new product family will bring the cost and time-to-market advantages of programmable technologies, such as CPLDs and FPGAs, to the emerging system-on-a-chip marketplace.

More information about Cypress Microsystems and its products can be accessed through its Web site at www.cypressmicro.com.

"Safe Harbor" Statement under the Private Securities Litigation Reform Act of 1995: Statements in this press release regarding Cypress Semiconductor's business that are not historical facts are "forward-looking statements" involving risks and uncertainties, including but not limited to: the effect of global economic conditions, shifts in supply and demand, market acceptance, the impact of competitive products and pricing, product development, commercialization and technological difficulties, and capacity and supply constraints. Please refer to Cypress Semiconductor's Securities and Exchange Commission filings for a discussion of such risks.

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Word Mark	**VERILOG**
Goods and Services	IC 009. US 038. G & S: COMPUTER AIDED ENGINEERING COMPUTER PROGRAMS FOR ELECTRICAL ENGINEERING. FIRST USE: 19850312. FIRST USE IN COMMERCE: 19850312
Mark Drawing Code	(1) TYPED DRAWING
Serial Number	73595361
Filing Date	April 25, 1986
Published for Opposition	October 14, 1986
Registration Number	1423697
Registration Date	January 6, 1987
Owner	(REGISTRANT) GATEWAY DESIGN AUTOMATION CORPORATION CORPORATION DELAWARE P.O. BOX 1545 235 GREAT ROAD LITTLETON MASSACHUSETTS 01460
Assignment Recorded	ASSIGNMENT RECORDED
Type of Mark	TRADEMARK
Register	PRINCIPAL
Live/Dead Indicator	LIVE

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Word Mark	SPARTAN
Goods and Services	IC 009. US 021 023 026 036 038. G & S: INTEGRATED CIRCUITS. FIRST USE: 19991206. FIRST USE IN COMMERCE: 19991206
Mark Drawing Code	(1) TYPED DRAWING
Serial Number	75416785
Filing Date	January 12, 1998
Filed ITU	FILED AS ITU
Published for Opposition	December 29, 1998
Registration Number	2358214
Registration Date	June 13, 2000
Owner	(REGISTRANT) Xilinx Inc. CORPORATION DELAWARE 2100 Logic Drive San Jose CALIFORNIA 95124
Attorney of Record	SUSAN E. HOLLANDER
Type of Mark	TRADEMARK
Register	PRINCIPAL
Live/Dead Indicator	LIVE

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